

**North San Juan Fire Protection District  
Community Fire Plan**

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## 1. EXECUTIVE SUMMARY

### 1.1 PROBLEM OVERVIEW

The North San Juan Fire Protection District (NSJFPD) faces a severe risk of wildland fire. Years of fire suppression, soil disturbance, vegetation regrowth, rural development and road construction, often not to current specifications, have created severe fire and fire-fighting threats. During the summer fire season our dense mixed forest understory with ladder fuels is an obvious challenge; Scotch Broom on formerly-cleared land is another. Many of our buildings lack defensible space and some bridges, culverts and roads cannot safely accommodate fire apparatus. Water supplies are often inadequate for fire protection and many citizens are unaware of actions they can take independently to improve their personal safety and protect their property. The size of our District, 70 square miles, and its location north of Nevada City and Grass Valley, magnify these challenges and present a risk to Nevada County's major population areas.

### 1.2 PROCESS OVERVIEW

CDF asked the District to draft a community fire plan to coordinate with the county fire plan. The NSJFPD Board formed a committee including citizen volunteers which began work late in 2004. Data from the county, large-scale maps from CDF, other fire plans, state documents and consultants provided information. Sections were drafted by committee members, reviewed by the committee and revised. The plan was further revised through input from institutions, government agencies, businesses and the general public, all in open meetings previously announced.

### 1.3 OVERALL GOALS

The main goal of this Community Fire Plan is to reduce fuel loads to decrease the intensity of wildfire and limit fire danger to structures and life. The plan promotes safe evacuation and citizen protection in the event of wildfire, on-going education of the public and training of cooperative citizen teams, improving neighborhood safety and professional assessment of fire-related infrastructure needs throughout the District.

### 1.4 PRIORITY PROJECTS SUMMARY

- a) Thin dense fuels on each side of several evacuation routes to form shaded fuel breaks, dividing the District into more defensible sections;
- b) Establish safe areas;
- c) Assess hazards, infrastructure and home safety in neighborhoods which volunteer for this service, also training citizen groups in self-protection, first aid, creation of defensible space and neighborhood safety measures they can take independently;
- d) Reduce understory fuel loads in each neighborhood.

### 1.5 ACKNOWLEDGEMENTS

The following contributed significantly to this plan:

Community Fire Plan Committee: Bill Aufiero, Sharon Beckenbach, Carol Chadima, JoAnn Fites-Kaufman, Peter Goering, Boyd Johnson, Nancy Lorenz, Jean Nilsson, Rob Paulus, Bruce Sturm.

Agencies: CDF, Fire Safe Council, Nevada County GIS, Emergency Preparedness  
Consultants: Steve Beckwitt, Tony Clarabut, Sean Griffis, Rich Reader

## 2. INTRODUCTION

### 2.1 BACKGROUND, HISTORY OF ACCOMPLISHMENTS

The North San Juan Fire Protection District is considered by CDF to be a very high fire danger severity zone. Twice in the past half century this area has been the point of origin for major wildland fire: the large fire in the 1960's and the 49er Fire beginning in September 1988—which consumed hundreds of structures in the Penn Valley and Rough And Ready areas and is considered one of California's most destructive fires.

Over the past twenty years the District has grown from a volunteer fire department to a taxpayer-supported fire district still staffed mainly by volunteers. The District has worked to be proactive in areas of wildfire prevention as well as fire extinguishment. We were founding members of the Yuba Watershed Council and were instrumental in bringing the public benefits of a Proposition 204 grant to western Nevada County, which included substantial public education and fuels reduction components. We recognize the importance of public safety awareness and education regarding wildland fire. The NSJ FPD was one of the first fire agencies in Nevada County to adopt CAFS (Compressed Air Foam System) technology to increase our versatility and effectiveness in fighting wildland fires and protecting structures.

### 2.2 MISSION STATEMENT, STRATEGIC PLAN

*This District shall provide fire protection, rescue and emergency medical services, education in fire safety and emergency standards, and other services to protect lives and property while maintaining the highest level of safety for firefighters/rescue personnel. Services shall be provided in a professional manner within the economic and demographic limitations of our community and in recognition of the need for dedicated volunteer involvement, using innovation and flexibility in response to local needs and conditions.*

The NSJ Fire Protection District residents and visitors stand to gain a substantial benefit from reducing the risk of wildland fire and its potential impact to life, property and natural resources. As a large territory with a small population and small tax base we have a substantial challenge in implementing any such program.

A Strategic Plan for the District is still under development.

### 2.3 METHODOLOGY

The Nevada County GIS system, CDF large scale topographical maps showing fuels/fire history/population density etc. and the knowledge of fire ecologists were the major sources of information used to analyze the problem and develop an action plan.

### 3. WHAT IS FIRE SAFETY? HOW TO BE READY WHEN FIRE COMES

#### 3.1 BEFORE THE FIRE

##### **3.1.1 Defensible Space**

Defensible space is the area between a structure and the oncoming wildfire, where vegetation has been modified to reduce the threat from fire and provide the opportunity for firefighters to defend the structure safely and effectively. Sometimes defensible space can be as simple as a well-maintained back yard. Specific advice on improving defensible space around your property is available from a number of sources including the NSJFPD's "How to Protect Your Property from a Catastrophic Wildfire," and various publications of the Nevada County Firesafe Council and the California Division of Forestry and Fire Protection.

##### **3.1.1.1 Legal Requirements**

In California PRC 4291 is the law regarding defensible space around homes. CDF and the NSJFPD are happy to do 4291 inspections or provide advice and consultation regarding compliance with this law.

##### **3.1.1.2 Fire-Resistant Landscaping**

Many plants that are less likely to burn can be used around homes. Fire resistant plants have moist, supple leaves, little dead wood and tend not to accumulate dry, dead material. Their sap is water-like and does not have a strong odor. Fire-wise plant books are available from the NSJFPD office.

##### **3.1.1.3 Relocation of Flammable Materials**

Simple actions that homeowners can take include removing wood piles and other combustibles from around homes. Decks and the materials that accumulate on and underneath them are an area of special vulnerability during a fire. Wood piles should be a minimum of thirty feet away from any structures. Fuels, solvents and other volatiles should be stored well away from homes when possible, since their presence in any structure puts the structure at far greater risk during a wildfire.

##### **3.1.1.4 Recommended Building Materials/Fire-Wise Construction**

Use fire resistant materials whenever possible in construction or in remodeling for fire safety, such as metal or tile roofing, fireproof siding materials. Decks, soffits and openings where fire could enter a structure should be enclosed and kept to a minimum.

##### **3.1.2 Water Sources**

Provide access to water for firefighting, such as ponds and buried or above-ground tanks. Provide standard fire department connections and close access to hydrants for fire trucks. Marking domestic water supplies can also make them available for fire fighting. Provide clear access to firefighters including Knox key boxes and provide information on water sources and alternative power sources for wells and pumps in case of power failure.

##### **3.1.3 Neighborhood Emergency Response Teams**

Some neighborhood groups will opt for emergency training in addition to assessment of the local infrastructure. In such cases, Red Cross certified trainers are available to provide C.E.R.T. (Community Emergency Response Team) training. The NSJ Fire Department has instructors able to teach CPR, First Aid and other classes to the public.

### **3.1.4 Personal Tools, Equipment, Fire Protection Clothing**

Neighborhood assessments will result in lists of recommended tools and clothing for purchase by local citizens. Assistance will be provided to them in finding grants or sales of used equipment as appropriate.

## **3.2 DURING THE FIRE**

Fighting the fire yourself is an option that contains substantial risk, especially if your property is adjacent to heavy fuels or has not been well cleared. Fire departments and law enforcement agencies encourage evacuation and may indeed order it in an effort to reduce risk to life and increase firefighter safety and effectiveness. Individuals hoping to stay and fight a fire must plan ahead and listen to advice from fire officials. The NSJFPD has a home emergency preparedness plan available to anyone who asks.

Be ready to evacuate and identify safety zones and shelter-in-place locations.

### **3.2.1 Emergency Communications**

a) Internal/tactical: a Federally-mandated conversion to narrow-band radio equipment would require grant or governmental funding, being beyond the capacities of our revenue. As communication equipment becomes inoperable or beyond economical repair, we will phase in new equipment with narrow band capability, but without a grant that would take several years.

b) External/public: The District hopes to establish an emergency “hot line” with a frequently updated and time-marked phone message for public information during emergencies. The county Rapid Notification telephone system may also be utilized in the event of evacuation. See Sec. 8.5.5.1

### **3.2.2 Evacuation Plan**

See Sec. 8.5.5.

#### **3.2.2.1 Safety Zones**

See Sec. 8.1, 8.5.5.2.

#### **3.2.2.2 Preparing Pets and Livestock for Emergencies & Evacuation**

Plans for evacuation and shelter of pets and livestock should be developed by animal owners. Information and assistance may be available from animal rescue organizations, the American Red Cross and Nevada County Sheriff. In addition, literature explaining necessary preparation and evacuation procedures which is currently available will be distributed to citizens during public education sessions, when new residents enter the community, or by request.

### **3.2.3 Shelter-in-Place Plans**

See Sec. 8.5.5.4.

## **3.3 AFTER THE FIRE**

### **3.3.1 Assess Your Success, Evaluate and Plan for How to be Better Prepared Next Time**

After a serious wildfire, the local Community Fire Plan Committee would meet with local, state, and federal officials to evaluate the plan and recommend any changes to the Board and county government.

## 4. PLANNING PROCESS

### 4.1 PLANNING AREA BOUNDARIES

Planning Area Boundaries are contiguous with those of the NSJFPD itself, which is a rural area in Sierra Nevada foothills covering 70 square miles bounded by the South Fork of Yuba to our south, the Middle Fork of Yuba to the west and north. Elevation ranges from approximately 1000' to 4000'. Land use is rural and residential with some agriculture, mining, and small commercial enterprises. We are zoned rural according to the county general plan. District population is approximately 2500 with approximately 700 housing units. Public lands include those of the TNF, California's South Yuba River State Park, BLM parcels and a jointly-managed BLM and community project called the '*Inimim Forest*'.

### 4.2 PROCESS AND PLAN DEVELOPMENT

An interim Community Fire Plan Committee began meeting on October 13, 2004. The Board created an ad hoc Fire Plan Committee in December, 2004; the committee began compiling, consolidating and analyzing relevant information and identifying stakeholders. Two public meetings were held to provide institutional and citizen input to the plan.

### 4.3 STAKEHOLDERS: WHO, WHAT, WHEN, WHY

A Stakeholder meeting was held on May 10, 2005, for institutions and large (>100 acres) landowners; a draft of the plan was reviewed at this meeting. Comments and suggestions were then incorporated into a second draft.

Stakeholders invited were:

California State Parks	Ray Patton
U.S.Forest Service	Gary Fildes, Forest Fuels Mgm't. Officer
	Jeanne Masquelier, District Ranger
Yuba Watershed Inst.	Bob Erickson
Bureau of Land Management	Ken Hood, Ed Bollinger
South Yuba River Citizens' League	Jason Rainey, Exec. Dir.
CDF	Rob Paulus, Battalion Chief
Calif. Dep't. Of Fish & Game	Jeff Finn
USDA, NRCS	Mike Brenner, Dan Taverner
Fire Safe Council of Nevada County	Michelle Phillips
Northern Sierra Air Quality Bd.	Joe Fish
Yuba Watershed Council	Eric Jorgensen, Don & Barbara Rivenes
Siller Bros. (logging company)	
Sierra Pacific Industries (logging company)	

These stakeholders have a direct relationship to land use in the District, to implementation of this plan or to environmental issues which the plan raises.

A public meeting for residents and others interested was held on May 21, 2005, with a similar process resulting in the final draft of the plan, presented to the District Board of Directors on June 21, 2005 for adoption.

## 5. COMMUNITY DESCRIPTION

### 5.1 GENERAL ENVIRONMENTAL CONDITIONS

The 70 square miles of the North San Juan Ridge are typical of the rich biological diversity and range of landscapes found in the Sierra Nevada foothills. Situated between the watersheds of the Middle and South Forks of the Yuba River, the terrain changes from the rolling grasslands, pastures and chaparral of the warmer lower altitudes of about 1000 ft., to the steeper creek ravines and mixed conifer and hardwood forests of the foothills. Altitudes vary from about 2000 to 3500 feet; dominant species are Incense Cedar, Douglas fir, Black Oak, Madrone and Manzanita. An evergreen forest of cedar and fir with sparser meadows dominates the landscape from about 3500 feet to the eastern end of the District, where snow and rainfall are heavier. Summers are dry and warm with prevailing westerly daytime breezes shifting to easterlies at night. Autumns bring some northerly winds and the most serious wildfire threats, until about mid-October, when the rainy winter season usually begins.

#### **5.1.1 Topography, Slope, Aspect, Elevation**

Situated between the South and Middle Forks of the Yuba River our District occupies steep canyon slopes with elevations ranging from approximately 2000 to 4000 feet. Access is provided by four bridges over the South Fork of the Yuba – Pleasant Valley Rd and SR 49 with the capacity to handle vehicles of all weights and bridges at Purdon and Edwards Crossings with weight limits of 5 tons permitting access by light vehicles only. To the north access is provided on SR 49 over the Middle Fork and, within the District, at Tyler Foote Crossing by a 5 ton bridge.

#### **5.1.2 Meteorology, Climate, Precipitation**

See Sec. 6.4

#### **5.1.3 Hydrology**

The District is bounded by the South Fork of Yuba to our south, the Middle Fork of Yuba to the west and north. Oregon Creek flows into the Middle Fork at the District's northern boundary. The South Yuba has been declared a Wild and Scenic river by the State of California. The Middle Fork is dammed at "Our House," forming a reservoir suitable for helicopter water reloading. A scattering of ponds fed by springs or seasonal creeks can also provide some water for firefighting, though many are inaccessible to helicopters.

#### **5.1.4 Ecosystem Types**

Lower elevations in the District are characterized by dry chaparral, grasses and Ghost Pine. Most of the region above about 2200 feet consists of mixed conifer/hardwood forest, the predominate species being Douglas fir, Ponderosa, some Sugar Pine, Incense Cedar, Madrone, Manzanita and Black Oak. Above 3500 feet, hardwoods decrease in number, with fir and cedar prevailing.

#### **5.1.5 Threatened and Endangered Habitat Types**

Wildlife is diverse and typical of California Sierra foothills. Spotted Owls and Goshawks are the only rare or endangered species, both at higher altitudes.

### 5.2 POPULATION, DEMOGRAPHICS

Some 2500 people live here. Many are self-employed; others commute to jobs in nearby towns. Most residents live below 3500 ft., within ten miles of North San Juan. Summer visitors (State Parks estimate: 300,000 person-visits/year) use park facilities at

Bridgeport, North Columbia, Oregon Creek and numerous swimming and fishing sites along both rivers. Additionally up to 200 visitors per week will live at Shady Creek Camp, a summer family facility located on Tyler Foote.

Population growth has been low, changing by fewer than 200 between the 1990 and 2000 census. Construction has increased, but no firm evidence confirms a corresponding population change. Nevada City and Grass Valley have experienced rapid growth over the same period; population pressures in town may shift growth to the District, but no data show that, as yet. The 30-minute commute time to Nevada City and the county general plan zoning limiting new parcels to 40 acres will inhibit growth. Redevelopment of North San Juan is possible but still an unknown. Population will probably grow slowly here for at least ten years.

### 5.3 COMMUNITY LEGAL STRUCTURE, JURISDICTIONAL BOUNDARIES

For fire jurisdiction, see Section 4.1

The District is part of Nevada County Supervisorial District 4 and falls within the jurisdiction of the Nevada County Sheriff, California Highway Patrol and CDF. Portions of the District are also areas of responsibility of the California State Parks Department, the US Forest Service (Tahoe National Forest), and the Federal Bureau of Land Management.

### 5.4 LAND USE/DEVELOPMENT TRENDS

The Ridge was extensively logged in the nineteenth and early twentieth centuries, leaving few old growth trees. The area includes several historic communities with "Western Colonial" architecture, such as French Corral, North San Juan, North Columbia and other former town sites. These communities have a small number of cottage industries, retail stores, ranches and truck farms, a medical and dental clinic, two schools and a relatively large religious community with facilities for visitors and residents. Development, its attendant fire suppression and lower levels of annual rainfall have resulted in a volatile, relatively dense forest with extensive "ladder" fuels in the understory.

### 5.5 INFRASTRUCTURE

Seven major paved roads serve these areas, while well over 100 private, unpaved roads provide access to the remoter regions of the District. Most roads, both paved and unpaved, passing through forested areas are threatened by dense forest and understory close to their borders. Some alternate escape routes for residents are blocked by fallen trees and vegetation or traverse private property and are blocked by gates; some road easements have fallen into disuse and are similarly blocked. Bridges at Edwards' and Purdon Crossings of the South Yuba River are inadequate and dangerous for evacuation.

French Corral, North San Juan, North Columbia and the surrounding businesses and residences below 3500 feet receive electrical power from the Colgate-Allegany 60 KV power line which crosses the spine of the Ridge to about the 3000 ft. level and crosses the Middle Fork of the Yuba River, heading north into Sierra County. An electric sub-station is located along Tyler Foote Crossing Rd. near the intersection of State Highway 49. A relatively small number of residences and business beyond North Columbia generate their own electrical power. Telephone service exists throughout the region; one microwave relay station is located in North Columbia. Cell phone service is limited, with reception being affected by terrain. Radio communication between emergency

service vehicles is usually reliable but can also be adversely affected in canyons and ravines. A county-wide automatic call-up system is available for emergency use to notify residents; numbers must be entered in advance and changes maintained in the system.

Steep, rocky canyons make the rivers poor sources for firefighting water, and relatively few homeowners have water storage facilities. A small number of ponds and lakes are available, and the religious community has extensive water storage and distribution facilities. In the event of wildfire, water supplies would be overtaxed, although a CDF air attack station with water and fire retardant reloading facilities is only two minutes' flight time away, in Grass Valley.

No aircraft runway near a water supply exists in the District, but several landing sites and water refilling sites are available to helicopters. Water storage facilities are also available to fill tenders, but not in sufficient number to make vehicle travel times acceptable. Water storage sites are more numerous in populated areas below 3300 feet and sparse elsewhere. There are no hospitals on the Ridge; a private medical clinic near the Cherokee town site serves local residents. Twin Ridges School District operates one elementary school near North Columbia and has its central office in a currently vacant school site on Oak Tree Rd. The religious community of Ananda operates another school. High school and private school students must travel to Nevada City or Grass Valley.

## 5.6 EMERGENCY SERVICES

### **5.6.1 Fire Protection Response/Readiness**

Fire protection and emergency medical service are provided by the North San Juan Fire Protection District, a volunteer service available for immediate response at any time. In summer months, similar service is provided by a CDF facility at about the 3500 foot level. Emergency medical transport is provided by ground ambulance from Grass Valley or several air ambulance helicopter providers located throughout the region. Ground ambulance takes about 25 minutes; helicopter about five minutes, but service can be delayed by the need to transport victims by ground ambulance to helicopter landing zones. Police service is sporadic, with unscheduled patrols provided by the California Highway Patrol and Nevada County Sheriff. The Sheriff's office provides service and implements evacuation during a wildfire emergency.

## 5.7 INSURANCE RATINGS

The rural areas of the community have an ISO rating of 9, and the central portion of the District including the town of North San Juan an 8.

## 5.8 FIRE SAFE COUNCILS, WATERSHED COUNCILS, RESOURCE CONSERVATION DISTRICTS, NON-GOVERNMENTAL ORGANIZATIONS, HOMEOWNERS' ASSOCIATIONS

The Fire Safe Council of Nevada County is the only such entity serving the District. NGO's include the Yuba Watershed Council, a coordinating group monitoring environmental protection and watershed preservation or restoration efforts in the county, and the Yuba Watershed Institute, which operates in partnership with BLM to manage specified tracts of watershed lands to preserve old-growth forests and habitat. Several road associations control maintenance on local roads, but no tally or official listing of them is known. No known record of Homeowner Associations exists. Parts of the Neighborhood Assessments to be done for this plan include compiling information on such groups. The Natural Resource Conservation Service, a federal agency, provides

technical advice and assistance to landowners on land improvement for agricultural development; they have helped the District in past efforts at watershed protection and fuels reduction under a NSJFPD managed Proposition 204 grant.

## 6. CURRENT FIRE ENVIRONMENT

Fire has played an integral part in creating the forest environment of the Sierra Foothills and a significant function in shaping plant communities in the District. Historically, the District was a fire-dependent ecosystem with numerous fire-adapted species of plants and animals dependent on fire to recycle nutrients, regulate plant succession and wildlife habitat, maintain biological diversity, reduce biomass, and control insects and diseases. In recent decades, however, due to fire exclusion, grazing, timber harvest and mining, the ecosystems have changed dramatically. We now have a fire-prone ecosystem dominated by hot-burning fuels and thick brush.

### 6.1 WILDFIRE PROBLEM DEFINITION

Vegetation directly influences rate of spread, flame length, fire intensity, heat per unit area and other elements affecting fire suppression. A hillside with lots of fire-prone Manzanita, for instance, has a higher hazard rating than one with more fire-resilient species such as Madrone or Douglas fir. The fuel density in this area has increased the potential for devastating wildfires. Fire-prone species such as Manzanita and Scotch Broom are widespread.

### 6.2 LOCAL FIRE ECOLOGY

Historically, wildland fire frequently burned in most areas of the District. But the fire ecology is no longer a healthy system with small ground fires. In recent decades fire exclusion, grazing, timber harvest and mining have changed the ecosystems dramatically. Fire exclusion would have less impact on the ecology of an area characterized by infrequent crown fires and severe surface fires than on an area that typically experienced light surface fires every one to twenty-five years. Our aggressive fire suppression for about sixty years has created a dense understory with ladder fuel. This will lead to a catastrophic wildfire with crown fires and devastating ground fires.

### 6.3 FIRE HISTORY

From 1900-1919 there were 6 fires, all in remote areas and sized one square mile or less. Between 1920 and 1939 there were 4 fires in remote areas of similar size. Between 1940 and 1979 only one major fire burned 16 square miles. Between 1980 and 1999 one major fire burned 6 square miles and had its ignition point within the District. This was the 49er Fire, one of California's worst, which burned hundreds of structures south of the Yuba River in the Penn Valley and Rough & Ready Fire Districts. In 2004 numerous fires ignited but only one structure was lost.

### 6.4 FIRE WEATHER

Summer brings dry weather with minimal precipitation to the District. Dry lightning is common in the higher elevations. In the fall, a dry wind from the north brings our highest fire danger when fuel moisture content drops to dangerously low levels. The frequency is difficult to predict but occurrence is definite. Up slope and down slope wind is a daily occurrence during the fire season, with prevailing winds shifting from westerly during days to easterly at nights.

### 6.5 HAZARDOUS FUELS

The District's most fire-prone fuels are Manzanita and Scotch Broom. Manzanita is a native plant, but Scotch Broom is not. Because our forests are dense with vegetation, crown fires are common. This in turn makes all fuel within the forest hazardous. Fire suppression has also resulted in extensive tracts of dense forest with dead material, fallen trees, ladder fuels and brush.

### **6.5.1 Fuel Hazard Ranking &**

### **6.5.2 Condition Class**

The fuels rank extreme/severe for much of the District, in CDF Condition Class 3. In this category fire regimes have been significantly altered from their historical range and fire frequency differs greatly from its historical pattern. Roughly 75% of the District currently fits into Condition Class 3, mostly due to fire exclusion. Fire exclusion has created vegetation and fuel conditions for large and catastrophic fires that are more difficult to suppress than smaller fires. Throughout the District, our forests present a continuous fuel supply both vertically, in small, thin trees and dead branches (ladder fuels), and horizontally, in an abundance of dead and down material.

### **6.5.3 Natural Fire Breaks**

The District is bordered by two rivers which afford some natural fire break. Hwy 49 bisects the District north to south and Tyler Foote Rd. runs east to west. Pleasant Valley Rd. and Oak Tree Road run east to west. Four other fire breaks are formed by the Badger Hill, Columbia Hill, Malakoff diggings and the gravel beds of Shady Creek.

## **6.6 IGNITION HISTORY: SOURCE, SEASON, SLOPE, ASPECT**

Most of the fires in the District are human caused. However, lightning plays a role in the late summer and early fall. According to the CDF records for the District, over 50% of the ignition points are near or next to road ways. Given this fact we would expect future fires to ignite in the mid-to late-summer and near populated areas within the District.

## 7. RISK ASSESSMENT: IDENTIFYING & EVALUATING ASSETS AT RISK

### 7.1 STRUCTURES/DENSITY

The population is concentrated in the center of the District in the area bounded by Highway 49, Oak Tree Road and Tyler Foote Road. Major population concentrations within this area include North San Juan, the Ponderosa subdivision along Blind Shady, Ananda Village and the old Cherokee town site. Other population clusters include French Corral, North Columbia and lots bordering Cruzon Grade at the east end of the District. The densest population is the town of North San Juan. Outside of North San Juan the most densely settled areas have a density of approx one unit per 3-5 acres.

### 7.2 INFRASTRUCTURE

Key infrastructure that would require priority protection in case of fire includes the telephone exchange in North San Juan and the electric substation on Tyler Foote Rd. near Ivy Lane. The Colgate-Allegany transmission line also crosses the District and crosses the Middle Yuba canyon through dense vegetation. The Birchville reservoir and attendant ditches and pipes are another area of concern.

### 7.3 ACCESS/TRANSPORTATION, ROADS, DRIVEWAYS, BRIDGES, GATES, CULVERTS

See Sec. 5.5

### 7.4 BUSINESS COMMERCIAL

A concentration of commercial establishments in North San Juan includes churches, transfer station, gas station, grocery, restaurant, bar, gift shop, recreation center, auto repair, fire hall/community meeting hall, bicycle parts distribution and a senior center. Ananda Village includes a market, jewelry shop, thrift store and chiropractic and massage offices. The industrial zone at Ananda Village currently holds construction, architectural design, publishing, financial consulting, graphic design, distance learning and herbal essences. Other commercial areas include: Peterson's Corner (bar/restaurant, motel), the corner of Oak Tree and Tyler Foote (market, fire station), Milhous on Highway 49 (farm supply store, center for troubled youth) Cherokee (medical clinic, jewelry manufacture, car parts fabrication, metal working) the North Columbia area (architect, market). Several camps and retreat centers are located in the District, including Shady Creek Camp, The Expanding Light retreat at Ananda Village, The Ananda Meditation Retreat off Jackass Flats Road, and the Ring of Bone Zendo off of Jackass Flats. Many home-based businesses scattered throughout the District include farms, ranches, nurseries, a winery and various art studios. Also of note to protect in a fire are two public schools: Oak Tree School on Oak Tree Rd. and Grizzly Hill School on Grizzly Hill Rd., and the private Milhous School and Ananda Living Wisdom School.

### 7.5 CULTURAL RESOURCES

Of particular importance to certain groups of residents are the Activity and Improvement Center and the Senior Center, both in North San Juan. Various Maidu Indian sites have been found throughout the District, including artifacts and grinding rocks. Because of the multitude of past fires and the short-lived nature of artifacts that could be damaged by fire, it is unlikely that any of the existing Maidu remains would be further damaged by wildfire. Fire suppression efforts involving heavy equipment could be a danger to these sites. A number of buildings and facades of buildings have survived from the Gold Rush era of last century. Of particular importance to protect from fire is the North

Columbia School House, a building dating from 1875, which now houses a cultural center and often holds collections of art work on display. The Methodist Church in North San Juan is of similar vintage and architectural and historic. There are several other 19<sup>th</sup> Century buildings in the North Columbia area. The Wells Fargo building on Pleasant Valley Rd. in French Corral and several of the buildings along Highway 49 in North San Juan are of historical significance. Lastly the restored covered bridge at the South Yuba Park headquarters in Bridgeport would merit special protection from fire.

#### 7.6 ECOLOGICALLY SENSITIVE AREAS: WILDLIFE, HABITAT, PLANTS, ECOSYSTEM HEALTH, PRIMITIVE AREAS

The northern part of the District has nesting sites for goshawks, an endangered species. Remnants of old growth forest provide special habitat for species of concern such as the spotted owl. Other key habitat areas include Montezuma Hill (a winter migration area for the Nevada City deer herd), the upper reaches of Grizzly Creek, and the 'Inimim Forest' parcels administered by BLM in conjunction with the Yuba Watershed Institute.

The District spans over two thousand feet in elevation and several ecosystems. Approximately 8% of the forested area still exhibits old growth characteristics, but much of the forest has unhealthy fuel density with younger trees and large concentrations of brush species. The low human population density allows a large and diverse population of wildlife.

#### 7.7 WATER AND WATERSHEDS

The rivers flow largely unimpeded through this area, but both feed into reservoirs (Lake Englebright). A significant portion of the flow of the Middle Fork during certain seasons is diverted into the North Fork and then Bullard's Bar Reservoir via a small dam and diversion tunnel at Our House. The rivers are important for recreational and habitat areas. Secondary streams flow off the ridge into the major rivers, dropping steeply into the river canyons. Shady Creek has a longer watercourse and parallels the South Yuba before dropping into the river canyon. Spring Creek and Bloody Run are other major secondary streams. The steep drainages leading into the river could act as chimneys during wildfires. Large wildfires in the canyons will likely strip existing vegetation and increase winter erosion. Water quality in the Yuba River and its tributaries will decline, affecting aquatic populations, damaging popular recreation resources, and increasing sedimentation in the Bullard's Bar and Lake Englebright reservoirs.

#### 7.8 AIR QUALITY

This region is part of the greater Sacramento air basin because westerly winds regularly bring ozone and other pollutants from the large metropolitan areas to the west. Ozone concentrations at ground level have at times reached unhealthy levels. Air pollution levels may be affecting forest health and could lead to increased hazardous fuel load if trees begin to die. The Northern California Air Quality Management District restricts open burning on some days because of poor dispersion characteristics in the atmosphere. Landowners are constrained as to when they can burn debris created by thinning and brushing for fire protection. These restrictions and the obvious advantage of preventing air pollution favor chipping for disposal of cleared vegetation. Air quality also makes the scheduling of control burning of large acreage more problematic. The smoke from any large wildfire in or near the District combines with the already unhealthy air to create air pollution levels that exceed acceptable standards and can lead to health 'advisories.' The effect of this air pollution is greater on children and older people.

Schools and the senior center should be given special attention if smoke reaches dangerous levels.

### 7.9 RECREATION

The Middle and South Forks of the Yuba provide major recreation areas for District residents and visitors. The State Park system maintains land along the South Yuba including a headquarters at Bridgeport and access points at Purdon and Edwards Crossings, including the nearby South Yuba Campground. Malakoff Diggins State park, on the eastern boundary of the District, attracts visitors to the historic Gold Rush era town, hydraulic mining pit, trails and campgrounds. Many tourists move through the District on Highway 49 to access recreation sites in Yuba, Sierra counties and beyond. Traffic on summer weekends increases by an estimated 40% or more along Highway 49. Dramatic vistas of forested hills and mountains are present at many places in the District. Wildfire would significantly degrade these scenic view sheds. Other recreation areas include, Activities & Improvement Center in North San Juan, facilities associated with Oak Tree and Grizzly Hill schools, and facilities at Ananda Village.

### 7.10 NATURAL RESOURCE MANAGEMENT AREAS

Special resource management areas are maintained on public land administered by the U.S. Forest Service, The Bureau of Land Management and California State Parks. The 'Inimim' forest cooperative management initiative developed with BLM, the Yuba Watershed Institute and the timber framers guild guides forest practices on a group of BLM parcels in the District. The plan seeks to return the forests to healthy old growth while managing for fire protection, wildlife habitat and recreation. BLM has thinned trees and masticated understory fuels on hundreds of acres. The State Parks system actively manages the South Yuba State Park and Malakoff Diggins State Park to reduce fuels and mitigate wildfire danger. A number of large privately-owned parcels zoned for timber production are managed by Siller Brothers and other private individuals. Owners of several large tracts of private land are working with CDF through their VMP program. Several growers operate commercial agricultural concerns in the District. Both CDF and Ananda Village maintain a network of shaded fuel breaks.

## 8. MITIGATION STRATEGY: THE ACTION PLAN

### 8.1 DESIRED FUTURE CONDITIONS

*In general, our long term goal is to reduce fuel loads to a point where wildfire would be likely to burn at intensity low enough to be controlled without posing a serious threat to life or infrastructure. The plan calls not only for fuels reduction, but for safe evacuation and citizen protection in the event of catastrophic wildfire, on-going education and training of cooperative citizen teams serving in small neighborhoods during public safety emergencies and assessment of infrastructure improvement needs, also by neighborhoods, throughout the District.*

### 8.2 MITIGATION GOALS

#### **8.2.1 Evacuation Routes**

The District will be divided into five REGIONS to implement this fire plan. Each region will have evacuation routes and safe zones. Evacuation routes will also serve as shaded fuel breaks. Major evacuation routes will be thinned/brushed to 200 feet back on each side of the road; Neighborhood evacuation routes will be thinned/brushed to 75 feet back on each side of the road.

#### **8.2.2 Regions & Safe Zones (safe zones in bold)**

- a) French Corral: Bridgeport east to Pleasant Valley/Birchville intersection, north and south to District boundaries.
- b) Highway 49 Corridor: Route 49 and areas on either side from the southern to northern District boundaries, including Milhous, Reader Ranch, North San Juan. West to the Pleasant Valley Rd./Birchville Rd. intersection; east to the Ivy Rd./Tyler Foote intersection; southeast along Oak Tree Rd. to New School Rd. **Oak Tree School; North Gold Mountaineer Senior Center.**
- c) Lower Tyler Foote/Purdon corridor: east from Ivy Rd. to the Welker hilltop and end of Blind Shady Rd.; north to the Brotherhood Way/Oak Tree Road intersection.
- d) Ananda/Sages Rd.: area east of Oak Tree Road and north of Tyler Foote up to and including Fandor Road and all parcels along Sages Road from Cherokee Town site to the District boundary. **Ananda Village Center.**
- e) Columbia: area along Tyler Foote from Fandor Road to the eastern boundary of the District, including the Jackass Flat/Fire Access area. **North Columbia Schoolhouse Cultural Center.**

#### **8.2.2.1 Major Evacuation Routes:**

- a) Highway 49 between District boundaries
- b) Tyler Foote Road northeast from Hwy. 49 to District boundary
- c) Oak Tree Road & Purdon Road from Tyler Foote to the District boundary\*
- d) Pleasant Valley Road from Hwy. 49 to Bridgeport

#### **8.2.2.2 Neighborhood Evacuation Routes:**

- e) Blind Shady/Wah Way/Jackass Flats Roads (fuels reduction almost completed)
- f) Sweetland Road
- g) Sages/Salmon Mine/Ayodhya Roads
- h) New School Road
- i) Old Mill Road/Tyler Foote/Longpoint Road loop
- j) Lake City & Grizzly Hill Roads from Tyler Foote to District boundary\*
- k) Birchville Road

\*Bridges crossing the South Yuba River at Purdon and Edwards' crossings are inadequate in the event of an evacuation. These bridges, which would be essential in the event of a fire blocking Tyler Foote Road (as occurred in 2005) could be blocked by either an accident or stalled vehicle, as is true of the immediate approaches on either side. Nevada County should take responsibility for upgrading these structures and their approaches on county roads to make them suitable for evacuation.

### **8.2.3 Fuels Reduction**

A sustainable plan will reduce all 'very high' and 'high' density fuel areas to moderate or low density (CDF Nevada County data) and maintain these levels of fuel load. Thinning, brushing, burning, logging, chipping and prescribed burning will be used to reduce fuel loads and to maintain the lower levels in compliance with the Nevada County Fire Plan. Work will be performed by property owners and private contractors, with assistance from the NSJFPD, CDF, U.S. Forest Service, California State Parks, BLM, NRCS and the Fire Safe Council of Nevada County or other agencies.

### **8.2.4 Neighborhood Assessment and Training**

On a voluntary basis, citizens will be encouraged to form NEIGHBORHOOD GROUPS. The size of the neighborhoods will depend on population density, terrain and road access but would generally not exceed about two square miles. As grant funding permits, firefighters with appropriate certification (NSJF, CDF, USFS, NC Fire Planner) will serve as ASSESSMENT & TRAINING OFFICERS. They will meet with each neighborhood group to assess fire hazards, bridge and culvert capacities, fuel loads, water supplies and communication needs in each neighborhood, assist in addressing the needs and train neighborhood teams in fire prevention, property protection and public safety. Such assessment and training may require regular meetings for a period of up to a few months. Periodic follow-up sessions for retraining and review may also be required.

### **8.2.5 Education**

A COMMUNITY EDUCATION PROGRAM will be implemented to inform citizens of details of this plan, including provisions for evacuation, shelter in place, safety zones, fuels reduction and the neighborhood provisions for fire safety and prevention and public safety. The education program will include a District library of fire safety, fire-wise landscaping, defensible space, first aid and other literature for distribution to citizens on request. Copies of these materials and of this fire plan will also be available on the District web site. New residents will also be identified through voter registration rolls, building permit applications and parcel ownership changes so that these materials may be made available to them.

## **8.3 CURRENT PROJECTS**

Fuels reduction projects have been in progress for several years, funded by Prop. 204 and by the Fire Safe Council of Nevada County.

Four shaded fuel breaks exist in the District, all developed by CDF and Nevada County: the Montezuma Break (Jackass Flat over Montezuma Hill to Miller Road and Bunker Hill); the North Columbia Break (N. Columbia to the northern boundary of the District along Tyler Foote Road to Cruzon Grade Road); the North Columbia Fuel Break Expansion (still in progress); and the Snow Tent Break (from the end of the North Columbia Break to Graniteville.)

Since we are a volunteer rural fire district with limited resources, grant funding will be essential to provide the neighborhood assessments and to train and assist Neighborhood Groups. Grant assistance may also be needed to help Neighborhood Groups defray costs of infrastructure improvements such as culvert, bridge, water supply improvements or communication equipment. The District Fire Plan Committee will be responsible for submitting or coordinating pertinent grant requests. Once funding is available, prioritization will be as follows:

- 1) The Community Education Program can begin almost immediately; materials and trained, certified instructors are currently available.
- 2) Fuels reduction along Evacuation Routes and establishment of Safe Areas can begin immediately and should be completed within two or three years.
- 3) Fuels reduction should begin immediately and will be on-going for the life of this plan. After evacuation routes and safe areas are completed, priority for fuels reduction will be given to areas of high fuel density, working toward lower density areas as funding permits.
- 4) Neighborhood assessments and training can both begin almost immediately (protocols will have to be developed). While infrastructure assessments should be completed within five years, training of neighborhood teams will be on-going for the life of the plan, since re-training will be required as populations change.

## 8.4 PRIORITIZATION PROCESS

### **8.4.1 Biological, Economic, Community, Safety**

For community safety, the paramount needs are fuels reduction along evacuation routes and the establishment of safe zones.

The last major fire to begin in our District, the “49er” Fire, spread south and west, threatening Nevada City and Rough & Ready and doing extensive damage to homes and businesses in the Newtown Road area before extinguishment. Northerly winds typical of early fall, the height of the fire season, mean that any District fire threatens Nevada City and Grass Valley, beyond the threats to North San Juan and North Bloomfield. Fuels reduction, therefore, across the San Juan Ridge is the next priority, to protect District homes, businesses and the towns south of us.

Several small businesses employ local residents and are under proximate threat from dense understory and unmanaged forest. One such business, for example, RCD Engineering, employs over 20 residents and manufactures products for nation-wide distribution, yet is close to several parcels with high fuel densities. In addition, several large ranches conduct business in the District.

Fuels reduction is also essential to protect wildlife habitat. The south side of Shady Creek is a major migration route for Black-tailed Deer. The District is habitat for two rare or endangered species, Goshawks and Spotted Owls.

### **8.4.2 Resources Available, Project Readiness**

CDF, the Fire Safe Council and District assessment and training personnel are available to begin immediately. Funding is the only prerequisite.

### **8.4.3 Project Prescription**

Fuels reduction projects have been conducted extensively in the past in this District and local districts by CDF, the Fire Safe Council and local contractors. No special

preparations are needed; this project, as funded, will fit into the on-going efforts of these agencies to reduce fire hazards.

#### **8.4.4 Responsible Parties:**

A citizen volunteer from the North San Juan Fire Protection District, either a member of the Board of Directors or from the community and approved by the Board, will serve as PROJECT COORDINATOR once the plan is approved.

Each Neighborhood Group will choose a responsible leader to coordinate the work of property owners in fuels reduction, facilities improvement and attendance at training sessions conducted by appropriately certified instructors. The District will provide all pertinent education materials and will initiate action in areas where fuels reduction or area assessment is needed but where no neighborhood group is formed.

Neighborhood assessment and training officers have not yet been identified, although a pool of qualified persons is readily available; assignments can be made quickly once the plan is approved and funding is available.

#### **8.4.5 Agency Involvement**

All of these agencies were involved in public review and revision of this plan. CDF was involved from its inception in the entire process. (See Sec. 4.3 for list.)

##### ***8.4.5.1 California Department of Forestry***

CDF has provided extensive leadership and service in formulating this plan. Its continued assistance will be essential to coordinating work on shaded fuel breaks, supervising evacuation drills and planning for service to citizens in safe areas. Depending on community response, help may also be required from CDF in public education.

##### ***8.4.5.2 Fire Safe Council of Nevada County***

The District has no organization, equipment or funding to coordinate fuels reduction. Extensive assistance from the Fire Safe Council of Nevada County or other agencies will be required to:

- obtain permission from property owners for fuels reduction along evacuation routes;
- assist with fuels reduction on parcels with 'very high' to 'high' (CDF data designations) fuel densities and maintenance of those parcels at proper fuel densities;
- coordinate, with CDF, the establishment and maintenance of shaded fuel breaks.

The Council has, however, been the major provider of services involving fuels reduction and the establishment of shaded fuel breaks in the District in the past. They have been informed of this plan and have already submitted an initial grant request for its first funding, pending its approval.

##### ***8.4.5.3 Bureau of Land Management***

BLM properties comprise a large portion of lands in the District, and BLM provides major funding to current county fuels reduction programs. Beyond that assistance, however, it is essential that BLM provide funding for fuels reduction on BLM parcels:

- to comply with the Nevada County Fire Plan, and
- to permit citizens safe access through or along BLM properties to identified evacuation routes, and
- to maintain these properties, once desired fuel levels have been reached.

#### **8.4.5.4 California State Department of Parks**

Two major evacuation routes (Pleasant Valley Rd., Highway 49) traverse park properties. Park employees may need training to assist with evacuation in the event of a catastrophic fire.

#### **8.4.5.5 U.S. Dep't. of Agriculture, Natural Resources Conservation Service**

May provide assistance with fuels reduction through its "EQIP" program.

#### **8.4.5.6 U.S. Forest Service**

Much of the District is part of the Tahoe National Forest. Federal fuels reduction programs will significantly affect the safety of District citizens.

### **8.5 POSSIBLE ACTIONS**

#### **8.5.1 Vegetation Management/Fuel Modification Projects**

All fuels management will be done in accordance with the Fuels Management Prescription, Appendix B of the Nevada County Fire Plan.

##### **8.5.1.1 Thinning and Brushing**

Thinning and brushing will be used by parcel owners in very high and high fuel density areas where roads or driveways provide close access; the slash will be piled for chipping by property owners and chipped by the Fire Safe Council or other agency.

Thinning and brushing will also be done along major evacuation routes, the work and slash chipping to be done by the Fire Safe Council or other agency.

Neighborhood Groups will also use thinning and brushing as recommended by this plan to improve residential safety or to provide safer access to evacuation routes. The work will be done by neighborhood members; slash chipping will be done by the Fire Safe Council or other agency.

##### **8.5.1.2 Prescribed Burning**

In some 'very high' and 'high' fuel density areas inaccessible to chipping equipment, controlled burns may be necessary. Such burns would be conducted in conformity with Air District Burn Permits issued by the Northern Sierra Air Quality Management District and any permits required by the statutory fire agency in charge.

##### **8.5.1.3 Industrial Resource Management**

Siller Brothers plan no logging operations on their own holdings in the District for over 20 years. Sierra Pacific Industries, a timber harvesting concern, has no holdings within the District boundaries but does in areas contiguous with the District, as does Tahoe National Forest. Siskon mining lands are currently on the market for sale. We will work with these or any industrial concerns, as appropriate, to achieve the goals of this plan.

##### **8.5.1.4 Slash/Biomass Disposal**

Debris removal from evacuation routes, Neighborhood Group thinning/brushing projects and brush and ladder fuel removal in 'very high' and 'high' fuel density areas accessible to roads and driveways will be done with assistance from the Fire Safe Council, private parties or other agency.

### **8.5.1.5 Forest Products Utilization**

In cases where fuels reduction projects involve felling of large trees with commercial value, the Fire Safe Council will provide the logging service under prior agreement with the land owners for appropriate compensation.

## **8.5.2 Infrastructure Improvements**

### **8.5.2.1 Water Supply**

Water supplies suitable for firefighting currently available are identified on maps in the county GIS system, available to all fire apparatus on a laptop computer. This plan calls for additional on-site assessment of the 70 square miles of the District in small neighborhoods. These assessments are likely to lead to the identification of neighborhoods where water supplies are inadequate and to grant requests to fund or assist with the installation of ponds, reserve water tanks or small hydrant systems.

### **8.5.2.2 Roads/Access**

Ladder fuels and brush will be removed along several roads (Sec. 8.2.) Most roads in the District are privately constructed and maintained. Safe access for emergency vehicles over culverts, bridges and through forested areas during a fire is, for the most part, unknown. The scope of this problem and the District's size require that we assess small areas in person, using trained staff—one reason behind this plan's proposal for Neighborhood Assessments. Once infrastructure needs are identified, neighborhood teams will resolve the issues using private funds for private property or grant assistance for major or neighborhood evacuation routes.

## **8.5.3 Emergency Response**

### **8.5.3.1 Fire Protection Response/Readiness**

The clearing of major and neighborhood evacuation routes and the assessment and improvement of neighborhoods proposed here will both contribute to improved fire protection response.

### **8.5.3.2 Equipment**

NSJFPD has two water tenders and compressed air foam capabilities on its other apparatus. CDF provides both water-bearing helicopters and air tankers with fire suppression chemicals during fire season. Recommendation 19 of the Nevada County Fire Plan calls for a system of strategically located fire protection water storage tanks, which would be essential in some areas of the District to resupply water tenders. An additional tender may also be necessary for the District to comply with the Nevada County Fire Plan and to maintain its ISO rating.

### **8.5.3.3 Firefighter and Public Training, Certification and Qualification**

Both NSJFPD and CDF meet or exceed current training standards; NSJFPD volunteers participate in over fifty training and re-certification sessions annually. This plan calls for public training by certified trainers (NSJFPD and CDF) provided on a neighborhood basis. This plan would extend C.E.R.T. training (already done in some areas) to all volunteering neighborhoods, in addition to providing training in property protection and mutual assistance during emergencies.

**8.5.3.4 Defensible Polygons** See next section.

**8.5.3.5 Fuel Breaks (Shaded, Strategic, DFPZs)**

This plan would add each Major Evacuation Route as a primary shaded fuel break cleared to the same standards as the Expanded North Columbia Break. Each Neighborhood Evacuation Route will become a 170-foot-wide fuel break, effectively dividing the most populated areas of the Ridge into zones more easily defended against wildfire. The geographical position of the San Juan Ridge immediately north of the more heavily populated communities of Nevada City and Grass Valley vastly increases the value of these fuel breaks in protecting those areas against the historically more dangerous wildfires, those driven by northerly winds. In addition, several areas of sparse vegetation (areas of the Ananda community, several gold-rush era hydraulic diggings) form natural DFPZs and are identified as Safe Zones (see Sec. 8.1.)

**8.5.4 Defensible Space**

Available literature explaining defensible space has been used extensively in community training and information; it will be used in education efforts for this plan. In addition, the Neighborhood Assessments done for this plan will make specific recommendations regarding defensible space.

**8.5.5 Evacuation Plan**

Evacuation is a central part of this plan. Removal of brush and ladder fuels from evacuation routes is the first priority listed for implementation and a central component of the neighborhood assessment and training proposed.

**8.5.5.1 Emergency Communication System/Neighborhood Teams**

The Nevada County Office of Emergency Preparedness and the District have agreed to use the county's Rapid Notification System for routine department matters until personnel are familiar with its operation. This system will inform residents, either by Region or Neighborhood, of any evacuation. In addition, the District has established an emergency "hot line" with personnel responsible for updating its time-stamped recording to inform residents of the status of any emergency or of the need to evacuate.

Neighborhood Training called for in this plan will include evacuation training and the provision of alternate escape routes wherever possible.

**8.5.5.2. Safety Zones**

Several Safety Zones are called for in this plan. See Sec. 8.2.

**8.5.5.3 Escape Routes**

See Sec. 8.1 for Major and Neighborhood Escape route explanation. Some alternate escape routes for residents are blocked by fallen trees and vegetation or cross private property and are blocked by gates; some road easements have fallen into disuse and are similarly blocked. Neighborhood Assessments called for in this plan will identify such situations and resolve them with assistance from the County or through the necessary fuels elimination.

**8.5.5.4 Shelter-In-Place Procedure**

Training in shelter-in-place procedures will be done in Neighborhood Training sessions and implemented through the emergency communication systems identified in 8.5.5.1 above.

### **8.5.6 Education**

Education is a major component of this plan. The plan calls for its implementation in two ways:

- provided by certified instructors to Neighborhoods, on a voluntary basis, including American Red Cross C.E.R.T. training, and
- provided in community meetings and through educational literature, the District web site, and new resident education done when mitigation fees are paid for new construction.

### **8.5.7 Fire Safe Councils: Process, Stakeholders, Resources**

Discussed in Sec. 8.4.2.3

### **8.5.8 Fire Safe Consultations**

The NSJFPD, Nevada County and CDF have resources to provide advice to citizens to promote public safety and code compliance. In addition, Neighborhood Assessments called for in this plan will provide further information through on-site observations by trained firefighters.

### **8.5.9 Senior/Disabled Assistance**

Evacuation of elderly, disabled or remotely-located citizens during a wildfire follows a program instituted and maintained by the American Red Cross. Upon decision of the Incident Commander to evacuate, the plan is implemented by the Nevada County Sheriff's department. Data showing names, addresses, phone numbers and types of disabilities or special needs (ambulance, special vehicle, equipment) of the elderly and disabled are available in deputies' vehicles on CD-ROM, readable on laptop computers. The discs are updated at six month intervals and distributed to the Sheriff's Department and to local fire departments. Forms to update this information are distributed regularly by the Western Nevada County Chapter of the Red Cross and are available at the North San Juan Fire Protection District office on Tyler Foote Rd. The forms will also be distributed at public meetings held to discuss the draft of this community fire plan and will be distributed to Neighborhood Groups during training sessions as needed.

## **8.6 WATERSHED PROTECTION**

No grading is anticipated as part of this plan; if any becomes necessary, it will be done in accordance with county regulations. Sensitive soils and grading in sensitive areas where erosion could be problematic will be avoided. All work will be done to comply with state and local regulations and to protect secondary and tertiary water sources as well as to prevent erosion of tailings or soils from former mining operations.

## **8.7 PERMITTING, EXEMPTIONS**

Efforts to obtain permission from property owners or the permits from county, air quality board or other officials will begin upon approval and funding of this plan.

## **8.8 PRIORITIZED ACTIONS, IMPLEMENTATION TIMELINE**

### **8.8.1 Short Term (< 1 year)**

--EDUCATION/COMMUNITY EDUCATION PROGRAM

Timeline: Short Term; implementation can begin almost immediately.

### **8.8.2 Medium Term (1-10 years)**

#### **--EVACUATION ROUTES, SAFE ZONES**

Timeline: Short to Medium Term; completed within five years.

#### **--FUEL LOAD REDUCTION**

A sustainable plan will be in effect to reduce all 'very high' and 'high' density fuel areas to moderate or low density (CDF Nevada County data) and to maintain these fuel load levels. Thinning, brushing, burning, logging, chipping and prescribed burning will be used to reduce fuel loads in the District by at least 25% and to maintain the lower levels in compliance with the Nevada County Fire Plan. Work will be performed by property owners and private contractors, with assistance from the North San Juan Fire Protection District, CDF and the Fire Safe Council of Nevada County or other agencies.

### **8.8.3 Long Term (10+ years)**

#### **--NEIGHBORHOOD ASSESSMENT AND TRAINING**

Timeline: Long Term; from year one through 10+ years and on-going for the life of this plan as retraining/recertification are needed.

#### **--FUEL LOAD REDUCTION**

A sustainable plan will require us to maintain manageable levels of fuel load. This will be on-going for the life of this plan.

## **8.9 MONITORING AND EVALUATION**

The Community Fire Plan Committee will review this Plan every five years, as required by the Disaster Mitigation Act of 2000, and recommend any changes to the District Board.

The Community Fire Plan Committee will evaluate data gathered annually (a. through d. below) to determine whether the Fire Plan needs to be updated. The Committee will consider broadly

1. Were the mitigation measures implemented as planned?
2. What went right and what went wrong?
3. Are there opportunities for improvement?
4. Were objectives met?
5. How did this project affect residents' attitudes and behavior regarding fire danger and hazardous fuels?
6. Did the Plan place undue burdens on participants, thereby reducing community involvement?

and specifically

1. Status of evacuation routes and safe zones identified in the Action Plan
2. Number of private acres treated
3. Number of publicly-managed acres treated
4. Number of private and public acres maintained after initial treatment in order to determine what updates need to be made to the Action Plan

## 9. SUMMARY AND CONCLUSIONS

### 9.1 ANALYSIS AND FINDINGS

Action items were developed using three primary methods:

- a) Consulting topographical maps of the District showing fuels density, ignition and fire history, slope and aspect, developed parcels, population densities, water sources and roads;
- b) Discussion among committee members and with CDF and District officers;
- c) Suggestions from stakeholders and the public.

The action items include: fuels reduction; creation of major and neighborhood evacuation routes and safe areas; assessment of fire and safety-related infrastructure by neighborhoods, the assessments done by trained personnel; training of citizens by neighborhoods in personal safety, first aid, fire defense and evacuation, the training done by certified instructors; establishment of remote water sources for firefighting; consideration of additional mobile water sources for firefighting; assistance to neighborhoods in infrastructure improvement through grant requests.

### 9.2 PLAN UPDATE PROCESS

#### **9.2.1 Community Survey**

The Committee will determine the effectiveness of the NSJFPD Community Fire Plan during the five-year period by surveying the community and asking questions such as:

1. Are you familiar with or have you read about the NSJFPD Community Fire Plan?
2. Has reading about the Fire Plan heightened your awareness of wildfire hazards on the Ridge?
3. Has knowledge of the Fire Plan caused you to participate in neighborhood meetings to discuss local resources, evacuation routes, etc.?
4. Have you done any fuel reduction work on your property after learning about the NSJFPD Community Fire Plan? If so, what motivated you to do this work? If not, why?

#### **9.2.2 Public Meetings**

Public meetings will be held to encourage citizens to take an active role in the continued development of the Community Fire Plan by helping to identify needs, strategies and solutions to wildfire risk. These meetings will also inform citizens about proposed changes to the Fire Plan. The Committee will evaluate what it has learned from the above process to update the NSJFPD Community Fire Plan.

#### **9.2.3 Incorporation into Local Jurisdictional Plans**

The updated NSJFPD Community Fire Plan will be presented to the Board of Directors of NSJFPD for discussion and adoption. Copies will be provided to local agencies involved in planning or implementing the fire plan (CDF, BLM, Forest Service, Fire Safe Council, identified neighborhood groups). An information copy will be sent to the County Board of Supervisors.

### 9.3 NEXT STEPS

--A Community Fire Plan Director will be appointed by the Board to oversee implementation of the plan and to assume leadership of the Community Fire Plan Committee.

--The membership of the Community Fire Plan Committee may be reconstituted, depending on the wishes of current members regarding their continued service.

Pending Board approval of such requests, grant requests will be made:

- for Proposition 40 funds with the help of the Fire Safe Council;
- for Proposition 50 funds through the Yuba Watershed Council;
- for F.E.M.A. funds through the Federal government;
- for funds from other sources as they become available.

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APPENDIX: FUELS AND EXPECTED FIRE BEHAVIOR, NORTH SAN JUAN FIRE PROTECTION DISTRICT

Hazardous Fuels

Fuel loadings in the District are mostly moderate to high (Table x). The greatest concentrations are in dense conifer forest (35% model 10) and tall chaparral (11% model 4) or brush (21% model 6). These fuel types characterize the surface fuels.

In forested types, crown fuels are primarily moderate to high due to high vertical and horizontal continuity. Canopy base heights are most often less than 3 to 5 feet and canopy bulk densities most often exceed 0.2 kg/m<sup>3</sup>. Where canopies are higher off the ground, such as in mid-aged or older pine stands, there is often a tall layer of shrubs below, increasing the likelihood of crown fire.

Table x. Distribution of fuel types across the District. Data from the state database: *Surface Fuels Maps & Data* [http://frap.cdf.ca.gov/data/fire\\_data/fuels/fuelsfr.html](http://frap.cdf.ca.gov/data/fire_data/fuels/fuelsfr.html)

Fuel model	Description	Acres	percent
1	grass	878	1
2	pine/grass	11,358	12
4	tall chaparral	10,014	11
5	medium-light brush	10,807	12
6	heavy brush	19,093	21
8	hardwood/conifer light	966	1
9	hardwood/conifer medium	1,840	2
10	conifer heavy	32,295	35
28	urban	934	1
98	water	737	1
99	rock barren	2,569	3

Expected Fire Behavior

Fire behavior during conditions of high or very high fire weather will be active with high rates of spread and flame lengths often exceeding those allowing for direct attack with hand tools (>4'). In the dominant fuel types (shrub and heavy conifer forest), flame lengths will exceed 12' on steeper slopes or with winds greater than 20 miles/hour. In forested fuels, proportion of the canopy that will be consumed will be high.

Table x. Predicted fire behavior using NEXUS. Input conditions were chosen to reflect hot, dry, summer days or windy, fall days with dry or north or east winds. *Key assumptions were: 1-, 10- and 100-hour fuel moistures of 3, 4 and 5% respectively; foliar moisture of 100%, canopy bulk densities for shrubs of 0.8 kg/m<sup>3</sup>, and for forests of 0.25 kg/m<sup>3</sup>; canopy base height of 3 feet.*

Figure x. Predicted flame lengths in heavy conifer fuel type. Predicted fire behavior using NEXUS. Input conditions were chosen to reflect hot, dry, summer days or windy, fall days with dry or north or east winds. Key assumptions were: 1-, 10- and 100-hour fuel moistures of 3, 4 and 5% respectively; foliar moisture of 100%, canopy bulk densities for shrubs of  $0.8 \text{ kg/m}^3$ , and for forests of  $0.25 \text{ kg/m}^3$ ; canopy base height of 3 feet.

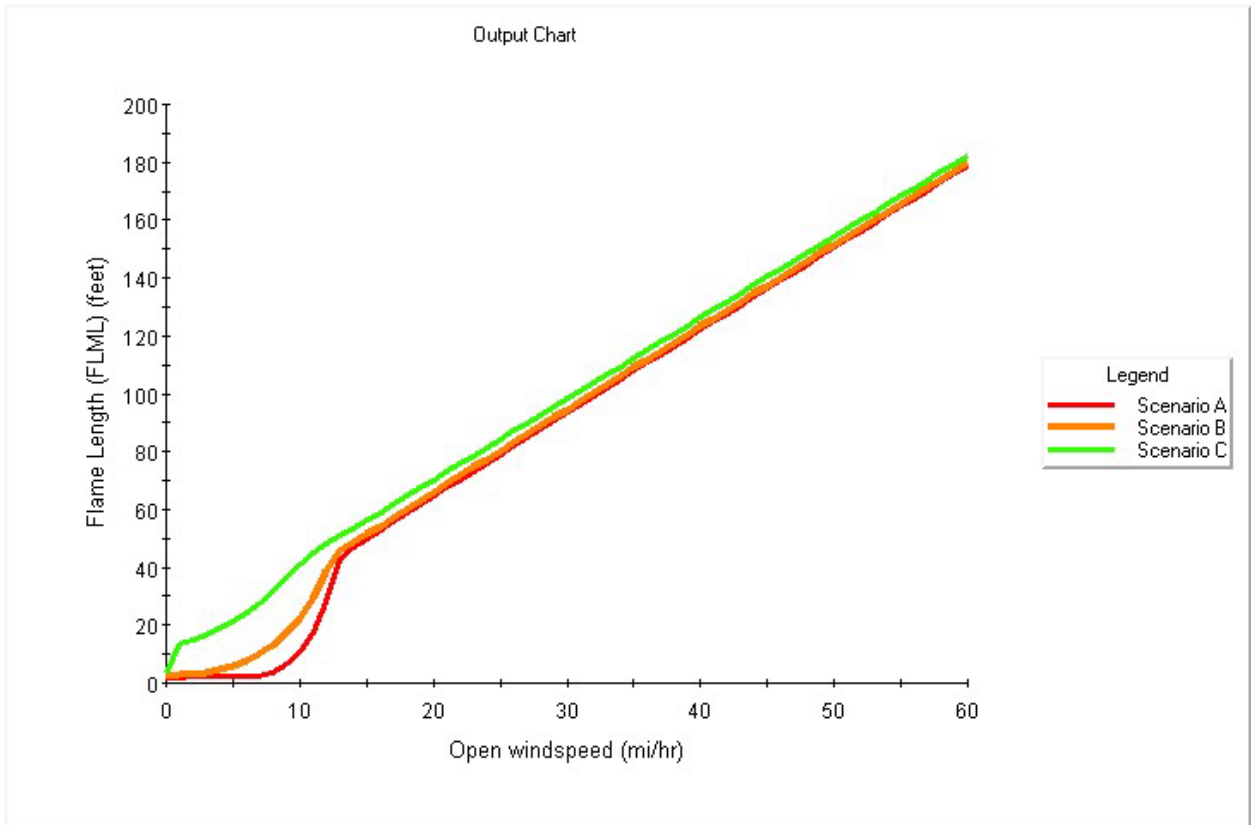


Figure x. Predicted crown consumption in heavy conifer fuel type. Predicted fire behavior using NEXUS. Input conditions were chosen to reflect hot, dry, summer days or windy, fall days with dry or north or east winds. *Key assumptions were: 1-, 10- and 100-hour fuel moistures of 3, 4 and 5% respectively; foliar moisture of 100%, canopy bulk densities for shrubs of 0.8 kg/m<sup>3</sup>, and for forests of 0.25 kg/m<sup>3</sup>; canopy base height of 3 feet.*

